

**Amendments to the claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

86. (*currently amended*) A method for monitoring protein synthesis comprising:  
providing a system comprising a marker detectable through detection of  
electromagnetic radiation, the marker comprising a first label covalently bound to at least  
one labeled-ribosome or a labeled-fragment thereof, and a second label covalently bound  
to at least one labeled element selected from the group consisting of a different location  
of the ribosome or a fragment thereof, or and a tRNA and an amino acid; and

detecting electromagnetic radiation signals emitted from the system in response to  
protein synthesis activity; and  
analyzing said emitted radiation so as to identify at least one protein being synthesized.

87. (*previously presented*) The method of claim 86, wherein the system is  
selected from the group consisting of a cell and an in-vitro translation system.

88. (*canceled*)

89. (*previously presented*) The method of claim 86 wherein said marker comprises at  
least one photo-active component.

90. (*currently amended*) The method of claim 86, wherein said emitted radiation  
comprises radiation obtained by energy transfer between said first label covalently bound  
to said at least one labeled ribosome or a labeled-fragment thereof and said second label  
covalently bound to said the at least one labeled-element.

91. (*currently amended*) The method of claim 86 wherein said marker comprises at  
least one label selected from the group consisting of a fluorescent dye, a fluorescent  
amino acid, a fluorescent peptide or protein, a fluorescent nucleotide, a quantum dot, a  
luminescent substance, a donor-quencher pair and a fluorescent donor-acceptor pair.

92. (*currently amended*) The method of claim 91-90, wherein said emitted radiation comprises a signal selected from a FRET signal, a quenching signal and a fluorescent signal.

93. (*previously presented*) The method of claim 86, wherein said marker comprises a donor-quencher pair and said detecting comprises detecting a reduction in emitted radiation.

94. (*currently amended*) The method of claim 89, wherein the at least one photo-active component is covalently bound to the at least one ribosome or to-a-fragment thereof.

95. (*previously presented*) The method of claim 86, wherein the ribosomal fragment is selected from the group consisting of ribosomal RNA, and a ribosomal protein.

96. (*previously presented*) The method of claim 95, wherein the ribosomal protein is selected from the group consisting of ribosomal protein L1, ribosomal protein L11, ribosomal protein S1 and fragments thereof.

97. (*previously presented*) The method of claim 95, wherein the ribosomal fragment is located near at least one ribosomal site selected from the group consisting of ribosomal A site, ribosomal P site, ribosomal E site, peptide exit channel site, L1 arm, and L7/L12 arm.

98. (*previously presented*) The method of claim 86 further comprising irradiating the system with electromagnetic radiation prior to the step of detecting electromagnetic radiation emitted from the system.

99. (*previously presented*) The method of claim 86, wherein the system is adapted to detect a single ribosome.

100. (*previously presented*) The method of claim 86, wherein the system comprises a plurality of ribosomes.

101. (*canceled*)

102. (*currently amended*) The method of claim 40186, wherein analyzing said emitted radiation comprises:

- a) clustering said signals into a list of signal sequences; and optionally
- b) transforming the at least one signal sequence into at least one data stream.

103. (*previously presented*) The method of claim 102, further comprising recording the at least one signal sequence in a database.

104. (*previously presented*) The method of claim 102, wherein the at least one signal sequence is composed of one or more values selected from the group consisting of time, spatial coordinates, signal type and signal intensity.

105. (*previously presented*) The method of claim 102, further comprising performing database interrogation, thereby retrieving one or more protein sequences from a database that match the at least one signal sequence.

106. (*previously presented*) The method of claim 102, wherein said emitted radiation comprises a sequence of FRET signals.

107. (*previously presented*) The method of claim 102, wherein each signal sequence in the list of signal sequences corresponds to signals obtained from a single ribosome.

108. (*New*) The method of claim 99, wherein said detected ribosome is in a live cell.